

**CLAIMS:**

1. Optical record carrier (1) for recording information readable by means of an optical beam (L) and comprising at least one information layer (P1) containing material showing amplified spontaneous emission (ASE) when stimulated by said optical beam (L) having an intensity above an ASE-excitation intensity threshold.

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2. Optical record carrier (1) as claimed in claim 1, characterized in that said material contains dye.

3. Optical record carrier (1) as claimed in claim 1, characterized in that said  
10 material contains DNA and dye.

4. Optical record carrier (1) as claimed in claim 2, characterized in that the dye contains 4-[4-(dimethylamino) stylyl]-1-dococylpyridinium bromide (DMASDPB).

15 5. Optical record carrier (1) as claimed in claim 2, characterized in that the dye contains 1,3,5,7,8-pentamethyl-2,6-di-t-butylpyrromethene-difluoroborate complex (PM 597).

20 6. Optical record carrier (1) as claimed in claim 2, characterized in that the dye contains 4-[N-(2-hydroxyethyl)-N-(methyl)amino phenyl]-4'-(6-hydroxy-hexyl sulphonyl) stilbene (APSS).

25 7. Optical record carrier as claimed in claim 1, characterized by at least two information layers (P1 - P7) and at least one spacer layer (R) separating said at least two information layers (P1 - P7), said at least one spacer layer (R) being transparent for said optical beam (L) and light emitted by said material.

8. Reading device for reading information from an optical record carrier (1) comprising at least one information layer (P1) containing material showing amplified spontaneous emission (ASE) when stimulated by an optical beam (L), comprising:

- a light source for emitting the optical beam (L) to be directed onto said at 5 least one information layer (P1), said optical beam (L) having an intensity above an ASE-excitation intensity threshold, and
  - detecting means for detecting mainly light emitted by said ASE-material.

9. Reading device as claimed in claim 8, further comprising means for focusing 10 (80) said optical beam (L) on said at least one information layer (P1) and having an intensity above said ASE excitation intensity threshold in a focal spot.

10. Reading device as claimed in claim 8, characterized by first detecting means (80) for detecting backward directional emission and second detecting means (91) for 15 detecting forward directional emission.

11. Method for reading optical information from an optical record carrier (1) comprising at least one information layer (P1) containing material showing amplified spontaneous emission (ASE) when stimulated by an optical beam (L), comprising the steps 20 of:

- focusing the optical beam (L) onto said at least one information layer (P1) and generating an intensity in said at least one information layer (P1) above an ASE-excitation intensity threshold,

- detecting mainly light emitted by said ASE material.